REMARKS/ARGUMENTS

Reconsideration and allowance of the above identified application is requested in light of the above amendments and the following remarks. New Claim 5 has been added. No new matter has been added as a result of the amendments.

The Present Invention

To briefly summarize, the claimed invention relates to a longwall support control for controlling the movements of longwall support units **1-18** in the longwall of a mine. In prior art longwall support control systems, a failure in a mining shield control device makes the entire system inoperative. However, the present invention advantageously permits operating the system despite such failure.

The invention as defined in the amended claims of the application comprises a plurality of longwall support units **1-18**, a central control system **50, 51**, and a plurality of mining shield control devices **34** connected to the support units and connected to the control system via two identical bus lines **58, 59**.

Each mining shield control device **34** stores a unique code word and is programmed to be activated to carry out the respective shield functions only when the stored code word is received from the bus line. The second bus line can be used to re-transmit incoming signals which are not provided with a code word respectively allocated to a particular shield control device, to an adjacent shield control device.

The Claim Rejections Under 35 U.S.C. § 103(a)

In the Official Action, the Examiner rejected Claims 1, 2, and 4 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,146,271 to Ward et al. (the Ward et al. reference) or U.S. Patent No. 5,029,943 to Merriman (the Merriman reference) in view of German Document DE 10207698 to Kussel (the '698 Kussel reference). The Official Action also rejected Claims 1, 2, and 4 under 35 U.S.C. § 103(a) as being unpatentable over British document BG 2167924 to Weber (the Weber reference) in view of the '698 Kussel reference.

The Ward reference discloses a mine roof support system having a remote control unit **22** and plurality of locally mounted units **20**, each associated to one of the roof support units. *See* col. 5, lines 20-27. A multi-core cable **23**, consisting of a plurality of individual cores **25** connects via cable sockets **26, 27** on each unit to the units **20** of neighboring roof support units and with the remote control **22**. However, there is no teaching or suggestion that the units connect via a second bus line (parallel bus) to a central control system and to one another, or that the units are programmed such that signals that come in via one of the bus lines and which do not store a code word associated to the respectively called up unit, are re-transmitted to an adjacent unit, in the manner of the present invention.

The Merriman reference discloses a mining machine **11** traveling along a series of roof supports **16**, note col. 3, lines 1-7. Information gathered on the mining machine is transmitted by transmitter **30** of the machine and receiver **32** on each of the roof supports **16**, connected to the control box **27** on each roof support, note col. 4, lines 5-12. The control boxes are electrically connected to each other so that events on one support can be used to control an adjacent support, note col. 3, lines 65-68. As shown in Fig. 3, the control boxes **27** are connected to each other by one cable. Data received by one control box **27** is then passed along existing links to the face end control unit **28**, note col. 4, lines 21-22. However, the Merriman reference is silent with respect to those links and thus does not teach or suggest how the cable fragments between two neighboring control boxes **27** are connected from entrance to exit of each of the control boxes **27**. Moreover, the Merriman reference does not disclose anything analogous to a second or parallel bus line and the programming to permit functioning in the manner of the present invention.

The Weber reference discloses a powered support system that includes various support frame units **1**, which are controllable individually or in groups by a computer **6**. *See* Abstract. The support units 1 are numbered consecutively and are addressable by keying the support unit number into a transmitter **12**. *See* page 2, lines 100-105. The computer **6** is connected to the support units **1** via a common line **8**, which comprises a coaxial cable. *See* page 2, lines 45-54; Abstract. As correctly noted by the Examiner, the Weber reference does not disclose anything analogous to a second or parallel bus line. Nor does the Weber reference teach or suggest the

programming to permit functioning in the manner of the present invention.

The Examiner cites the '698 Kussel reference as teaching a second bus line, referring to the translated title of the reference. Applicants submit, however, that the Examiner has misunderstood the term "two-core cable" to disclose a second bus line. In actuality, as stated in the translated Abstract, the '698 Kussel reference discloses "a" single two-core cable. This single cable comprises two wires (cores) but does not disclose two separate cables. Additionally, as more clearly indicated in AU 2002249081 (the Australian counterpart to the '698 Kussel reference, attached hereto), the cable **46** refers to a cable connecting individual shield control devices **34** to respective valve controls **40**, *see* page 4, lines 27-30, not between a plurality of mining shield control devices **34** and a control system. As shown in Fig. 2, the '698 Kussel reference discloses a single cable **58** connecting the mining shield control devices **34** and the longwall face control **33**. Thus, the '698 Kussel reference does not teach or suggest a second separate cable or bus line that can be used to re-transmit incoming signals which are not provided with a code word respectively allocated to a particular shield control device, to an adjacent shield control device, as recited by the Claimed invention.

Therefore, the teaching of a second bus line cannot be derived from the '698 Kussel reference. As a result, the '698 Kussel reference cannot be used to cure the admitted deficiencies of the Ward, Merriman, or Weber references.

Summary

For the reasons set forth above, it is respectfully submitted that the rejections of the independent Claim 1 under Section 103 of the Patent Statute are legally untenable and should be withdrawn. Since Claims 2 and 4 depend from independent Claim 1, it is respectfully submitted that these claims are also in condition for allowance. Applicants further submit that new Claim 5 is patentable over the cited references. As a result, Applicants submit that all claims are in condition for allowance and such action is solicited.

Respectfully submitted,

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